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Passaic Valley Sewerage Commissioners

Passaic Valley Sewerage Commissioners
Response to Request for Information
USEPA, Region 2

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PVSC Report

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VOC Screening for New York/New Jersey Harbor Estuary
(March 21, 2002)

Introduction

During the routine New York City (NYC) Harbor Survey in 1992, volatile organic compounds (VOCs) were detected in some of the Harbor waters. The reported values from this survey for one of the VOCs, tetrachloroethylene (PERC), were above the New York State (NYS) guidance values in more than half of the waters in the Harbor. Since that time, the City of New York has undertaken a program to reduce discharge of PERC from one of the main sources, drycleaning operations.

In 1999, the New York - New Jersey Harbor Estuary Program (HEP) Toxics Work Group (TWG) began a reevaluation of the Chemicals of Concern on its list from the HEP Comprehensive Conservation and Management Plan (CCMP) that was developed in 1996. Some chemicals were removed from the list because more recent data showed that they were no longer a problem. However, the group found that there was little recent data to evaluate whether PERC, or other VOCs were still of concern in the Harbor. As a result, the TWG recommended that a screening be undertaken for VOCs in Harbor ambient waters.

In February 2000 and again in February 2001, the HEP TWG coordinated a VOC assessment of ambient waters by various groups including: US Environmental Protection Agency, Passaic Valley Sewerage Commissioners (PVSC), NYC Department of Envirionmental Protection (NYCDEP), NYS Department of Environmental Conservation, and NJ Department of Environmental Protection. NYCDEP collected the bulk of the samples as part of their ongoing Harbor Survey, while PVSC collected samples from the Passaic and Hackensack Rivers and Newark Bay. Samples were transfered to the USEPA laboratory in Edison, NJ for analysis.

Results

The VOC analysis was based on USEPA Drinking Water Method 524.2 and included approximately 60 VOCs. Most of the VOCs were reported as "not detected" to a level of 1 ug/L. A comparison of the highest values found in the February 2000 and 2001 survey can be found in Table 1. The table includes the VOCs detected during the February 2000 and 2001 surveys and the applicable standard or guidance value for that VOC.

February 2000 Sampling

Most of the VOCs were reported as "not detected" to a level of 1 ug/L. Those VOCs reported above the detection limit of 1 ☞g/L included methyl tert-butyl ether (MTBE), 2-butanone, 2-chlorotoluene, and 1,2-dichlorobenzene. All the levels were below the guidance values or standards (one of the MTBE results exceeded the guidance value or standard for freshwater, but because the samples were in marine waters, the values are not applicable). Acetone was detected in nearly every sample; however, it was also detected in the field blank samples that were collected for the survey indicating the results are likely due to contamination. In addition, samples that were collected from nine stations in the Hudson, Harlem, and East

Rivers may have been compromised due to improper storage. Those results should be considered as biased low.

February 2001 Sampling

Most of the VOCs were reported as "not detected" to a level of 1 ug/L. Those VOCs reported above the detection limit of 1 ☞g/L included methyl tert-butyl ether (MTBE), 2-butanone, 2-hexanone, 1,2-dichlorobenzene, acrylonitrile, and chloroform. All but one of the levels were below the guidance values or standard. The results for acetonitrile exceeded the guidance value or standard; however, acetonitrile was also detected in the some of the field blank samples that were collected for the survey indicating the results are likely due to contamination. Acetone was again, detected in nearly every sample; however, it was also detected in the field blank samples that were collected for the survey indicating the results are likely due to contamination.

Table 1 Volatile Organic Compounds detected in the February 2000 and 2001 sampling events

Chemical	**Highest Value (□g/L)**		**Guidance Value/Standard (□g/L)**
	Feb 2000	Feb 2001	
Methyl Tert-Butyl Ether (MTBE)	10.7	2.3	10 for fresh water in NY, but not applicable to marine waters. No value for marine waters or NJ.
2-Butanone	1.35	2.0	No value for NY or NJ.
2-Chlorotoluene	3.35	NA	5 for fresh water in NY, no value for marine waters or NJ.
2-Hexanone	NA	2.0	No value for NJ. NY does not have standards that are applicable to the Harbor for this substance.
1,2-Dichlorobenzene	1.01	1.4	5 for aquatic life chronic marine value in NY and 50 for aesthetic in SD waters in NY (total of 1,2; 1,3; and 1,4-dichlorobenzene). NJ value

			for human health based on fish consumption is 16,500.
Acrylonitrile	NA	2.0	0.665 in NJ. NY does not have standards that are applicable to the Harbor for this substance.
Chloroform	NA	1.6	470 in NJ. NY does not have standards that are applicable to the Harbor for this substance.

Discussion/Conclusions

The PERC levels found in 1992 are not apparent in the 2000 and 2001 sampling events. This decrease in PERC in the Harbor could be related to the regulations that were imposed upon dry cleaners. Dry cleaners have decreased their waste from 2,000 gallons/year/cleaner to 200 gallons/year/cleaner and waste disposal is no longer allowed to be placed in the municipal sewer system. They have also stopped doing the cleaning at their own facilities. Dry-cleaning equipment has been upgraded due to regulations. In 1992 VOC levels were found above guidance values and standards, and in 2000 and 2001 levels were not above the guidance values and standards although some of the contaminants were detected in the 2000 and 2001 sampling events.

The change in VOC levels in the Harbor from 1992 to 2001 indicates that the dry-cleaning regulations had a positive impact on water quality in the Harbor. The HEP TWG has recommended that VOCs be removed from the HEP list of Chemicals of Concern.